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Ginzburg-Landau functional for nearly AFM Kondo lattice*

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We derive microscopically an effective action and Ginzburg-Landau functional for the nearly antiferromagnetic Kondo lattice. The interplay between the non-local modes of antiferromagnetic and spin-liquid type and local Kondo-like interaction is taken into account in this functional. The problem of elimination of unphysical states associated with usual fermionic or bosonic representations of spin operators in calculations of nonlocal spin correlations in Kondo lattice is resolved by using the semi-fermionic representation of spins with imaginary chemical potential which treats the local constraint rigorously. The mutual dependence of Kondo and Neél temperatures is analyzed in the framework of one-loop approximation. The modified Doniach phase diagram is constructed for the case of competing RKKY and Kondo interactions. Possible applications of the theory to *Ce*-based heavy fermion compounds are discussed.

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